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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,403	09/24/2004	Kye Seung Lee	101371-35	5686
27387 7590 05/17/2007 NORRIS, MCLAUGHLIN & MARCUS, P.A. 875 THIRD AVE 18TH FLOOR NEW YORK, NY 10022			EXAMINER CANNING, ANTHONY J	
			ART UNIT 2879	PAPER NUMBER
			MAIL DATE 05/17/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/509,403

Applicant(s)

LEE, KYE SEUNG

Examiner

Anthony J. Canning

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-19 and 21-23 is/are rejected.
- 7) ☒ Claim(s) 6 and 20 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1/2005</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The units for the equalities are not clear to the examiner; specifically the examiner is uncertain as to how taking the natural log of the power of the lamp multiplied by the number 4 will yield a number with the units of length.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 7, 8, 10-13, 17-19 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsukada (U.S. 5,220,249).

As to claim 1, Tsukada disclose a flat type fluorescent lamp comprising: an outer lamp body (see Fig. 12A, items 21 and 22; column 5, lines 20-26) sealed to define a discharge space (column 5, lines 20-24); and tube spacers (see Fig. 12A, item 23; column 5, lines 20-26) installed in the outer lamp body to divide the discharge space and thereby to define a discharge path (see Fig. 9, item 25; column 5, lines 30-32).

As to claim 2, Tsukada disclose a flat type fluorescent lamp of claim 1. Tsukada further discloses that the outer lamp body comprises a front panel (see Fig. 12A, item 21; column 5, lines 20-26), a rear panel (see Fig. 12A, item 22; column 5, lines 20-26), and circumference seal members formed of tube spacers or flat side plates (see Fig. 12B, item 22a; column 6, lines 16-22).

As to claim 3, Tsukada disclose a flat type fluorescent lamp of claim 1. Tsukada further discloses that the tube spacers have a section formed in one of a circular-shape (see Fig. 12A, item 23, the tube has a circular-shaped section), an oval-shape and a polygon-shape.

As to claim 4, Tsukada disclose a flat type fluorescent lamp of claim 1. Tsukada further discloses that the tube spacers are alternately arranged with each other (see Fig. 9, item 23; column 5, lines 27-30) and formed shorter than a width of the outer lamp body (see Fig. 9, item 23, the spacers do not extend all the way to the edge of the outer lamp body), thereby forming the discharge path in a zigzag-shape (see Fig. 9, item 23; column 5, lines 27-30, the examiner interprets serpentine to mean zigzag-shaped) between one ends of the tube spacers and one circumferential seal member (see Fig. 9, item 23, the discharge space is formed in the tube spacers).

As to claim 5, Tsukada disclose a flat type fluorescent lamp of claim 1. Tsukada further discloses that the tube spacers are alternately arranged in parallel (see Fig. 9, item 23) and extending from one side to the other side of the circumferential seal members opposing each other (see Fig. 12A, item 23), through holes are being formed in the vicinity of one end of each of the tube spacers to define the discharge path (see Fig. 9, item 23, the curved portion of the

discharge tube that connects the different straight portions is interpreted by the examiner as a through hole).

As to claim 7, Tsukada disclose a flat type fluorescent lamp of claim 1. Tsukada further discloses that a length of the tube spacer is shorter than a width of the outer lamp body (see Fig. 9, item 23), the tube spacers are aligned in lines or randomly distributed (see Fig. 12A, item 23; the tubes are formed perpendicularly to one another).

As to claim 8, Tsukada discloses a flat type fluorescent lamp of claim 1. Tsukada further discloses a phosphor layer (see Fig. 12A, item 24; column 7, lines 47-50) is deposited on the outer or/and inner surfaces of the outer lamp body (see Fig. 12B, item 24; column 7, lines 47-50) and the tube spacers (see Fig. 12A, item 24).

As to claim 10, Tsukada discloses a flat type fluorescent lamp of claim 8. Tsukada is silent with regards to the phosphor layer being deposited by using exciting luminescent phosphors with ultraviolet rays. However, a comparison of the recited process with the prior art processes does Not serve to resolve the issue concerning patentability of the product. *In re Fessman*, 489 F2d 742, 180 USPQ 324 (CCPA 1974). Whether a product is patentable depends on whether it is known in the art or it is obvious, and is not governed by whether the process by which it is made is patentable. *In re Klug*, 333 F2d 905, 142 USPQ 161 (CCPA 1964). In an ex parte case, product-by-process claims are not construed as being limited to the product formed by the specific process recited. *In re Hirao et al.*, 535 F2d 67, 190 USPQ 15, see footnote 3 (CCPA 1976).

As to claim 11, Tsukada discloses a flat type fluorescent lamp of claim 8. Tsukada further discloses that the phosphor layer deposited on the front panel and the phosphor layer

deposited on the rear panel of the outer lamp body are different in a thickness (column 7, lines 47-53).

As to claim 12, Tsukada teaches a flat type fluorescent lamp of claim 11 wherein the thickness of the phosphor layer deposited on the front panel is about 60-70% with respect to that deposited on the rear panel (see Table 1; the thicknesses of 15/20 yield a ratio of about 70%).

As to claim 13, Tsukada teaches a flat type fluorescent lamp of claim 8. Tsukada further teaches that the phosphor layer is deposited only on an inner surface of the front panel of the outer lamp body (see Fig. 12A, item 24; column 7, lines 47-50).

As to claim 17, Tsukada discloses a flat type fluorescent lamp of claim 1. Tsukada further discloses that a discharge electrode (see Fig. 9, item 26; column 5, lines 32-36) supported on the outer lamp body (see Fig. 9, item 26; column 5, lines 32-26).

As to claim 18, Tsukada discloses a flat type fluorescent lamp of claim 17. Tsukada further discloses that the discharge electrode is one of a cold cathode and a hot cathode (column 5, lines 32-36).

As to claim 19, Tsukada discloses a flat type fluorescent lamp of claim 1. Tsukada further discloses a pair of discharge electrodes (see Fig. 9, items 26; column 5, lines 32-36) disposed opposing inner both sides of the outer lamp body (see Fig. 9, items 26; column 5, lines 32-36), and the tube spacers are disposed to define a discharge path between the pair of discharge electrodes (see Fig. 9, item 23; column 5, lines 26-30).

As to claim 22, Tsukada discloses a flat type fluorescent lamp of claim 19. Tsukada further discloses that the discharge electrodes are coated on an inner surface of the outer lamp body (see Fig. 9, item 26, the electrodes are on the interior of the lamp body).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukada (U.S. 5,220,249)

As to claim 21, Tsukada discloses a flat type fluorescent lamp of claim 19. Tsukada further discloses that the discharge electrodes are metal wires (see Fig. 9, item 26; column 5, lines 32-36; cold cathode electrodes are commonly metal).

As to claim 23, Tsukada discloses a flat type fluorescent lamp of claim 19. Tsukada fails to specifically disclose that the discharge electrodes are formed of a material selected from the group consisting of diamond-like-carbon, amorphous-carbon, and boron nitride. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have electrodes of diamond like carbon, amorphous carbon or boron nitride, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ.

Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukada (U.S. 5,220,249) in view of Eliasson et al. (U.S. 4,983,881).

As to claim 14, Tsukada discloses a flat fluorescent lamp of claim 1. Tsukada fails to disclose that the phosphor layer is deposited on an outer surface of the front panel of the outer lamp body.

In the same field of endeavor, Eliasson et al. disclose a flat fluorescent lamp (see Fig. 2; column 2, lines 10-14) wherein the phosphor layer (see Fig. 2, item 5; column 4, lines 31-37) is deposited on an outer surface of the front panel of the outer lamp body (see Fig. 2, item 5; item 5 is situated on the outer surface of item 9, which the examiner interprets to be the top of the lamp body). Having the phosphor layer on the exterior of the lamp body protects the phosphor layer from degradation caused by attack from the discharge.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the flat fluorescent lamp of Tsukada to include that the phosphor layer is deposited on an outer surface of the front panel of the outer lamp body, as taught by Eliasson et al., to protect the phosphor layer from degradation caused by attack from the discharge.

As to claim 15, Tsukada and Eliasson et al. disclose a flat type fluorescent lamp of claim 14. Eliasson et al. further disclose that a transparent protecting layer (see Fig. 2, item 1; column 4, lines 39-43) is further deposited on the phosphor layer. This layer protects the phosphor layer from degradation from oxygen and moisture.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the flat fluorescent lamp of Tsukada to include that a transparent protecting layer is further deposited on the phosphor layer, as taught by Eliasson et al., to protect the phosphor layer from degradation from oxygen and moisture.

As to claim 16, Tsukada discloses a flat fluorescent lamp of claim 1. Tsukada fails to disclose that a phosphor layer unit is assembled on the front panel of the outer lamp body, the phosphor layer unit comprises a transparent panel, a phosphor layer deposited on the transparent panel, and a transparent protecting layer deposited on the phosphor layer.

In the same field of endeavor, Eliasson et al. disclose a flat fluorescent lamp (see Fig. 2; column 2, lines 10-14) wherein the phosphor layer unit is assembled on the front panel of the outer lamp body (see Fig. 2, item 5; column 4, lines 31-37), the phosphor layer unit includes a transparent panel (see Fig. 2, item 9; column 31-43), a phosphor layer (see Fig. 2, item 5; column 4, lines 31-43), and a transparent protecting layer (see Fig. 2, item 1; column 4, lines 31-43). This assembly protects the phosphor layer from attack from the discharge, and from oxygen and moisture.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the flat fluorescent lamp of Tsukada et al. to include a phosphor layer unit is assembled on the front panel of the outer lamp body, the phosphor layer unit comprises a transparent panel, a phosphor layer deposited on the transparent panel, and a transparent protecting layer deposited on the phosphor layer, as taught by Eliasson et al., to protect the phosphor layer from attack from the discharge, and from oxygen and moisture.

Allowable Subject Matter

Claims 6 and 20 contains allowable subject matter.

The following is a statement of reasons for the indication of allowable subject matter:

As to claim 6, the prior art of record fails to teach or reasonably suggest a flat type fluorescent lamp including all the limitations of claim 6, specifically that the tube spacer is provided with plural discharge holes or a slot-shaped discharge hole.

As to claim 20, the prior art of record fails to teach or reasonably suggest a flat type fluorescent lamp including all the limitations of claim 20, specifically that the discharge electrodes are formed of flat plates on surfaces of which grooves or projections are formed.

Claims 6 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony J. Canning whose telephone number is (571)-272-2486. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh D. Patel can be reached on (571)-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Anthony Canning *ac*

K. G. H. S. S.
5/14/07